REMARKS

Claims 1 - 28 are presently pending. In the above-identified Office Action, the Examiner objected to the Specification and rejected Claims 1 - 28 under 35 U.S.C. § 103(a) as being unpatentable over Marko *et al.* (U. S. Patent No. 6,154,452) in view of Nguyen *et al.* (U. S. Patent No. 6,272,328).

By this Amendment, Applicants have amended the Specification, canceled Claims 1 - 16 and amended Claims 17, 20, 22 and 28. A new Claim (Claim 29) has been added. For the reasons set forth more fully below, the present Application is submitted as properly presenting Claims patentable over the prior art. Reconsideration, allowance and passage to issue are respectfully requested.

The present invention addresses the need in the art for a system and method for distributing satellite digital audio radio service to a plurality of receivers that are not independently mobile relative to each other. The inventive system includes a satellite antenna and a radio frequency (RF) satellite receiver. In the best mode, the RF satellite receiver is a terrestrial repeater. The repeater decodes a stream of data received from the satellite and recodes the stream using an intermediate frequency satellite radio terrestrial broadcast format. In the best mode, the signal is an intermediate frequency signal in the XM radio, multi-carrier modulation (MCM) format. The recoded signal is rebroadcast by the repeater via a distribution network and received by a plurality of intermediate frequency (IF) receivers. The distribution system may be wireless, cable, or fiber optic. In the illustrative embodiment, the IF receivers are modified conventional satellite digital audio radio service receivers. A user interface is provided for each IF receiver to allow for channel selection and audio processing.

The invention is set forth in Claims of varying scope of which Claim 29 is illustrative. Claim 29 recites:

> 29. A satellite digital audio radio multipoint distribution system comprising:
>
> a satellite antenna for receiving a satellite digital audio radio signal;
>
> a terrestrial repeater connected to said antenna **for** decoding said satellite signal and **recoding said signal into an intermediate frequency (IF) satellite radio terrestrial broadcast format signal**; and
>
> **a system for distributing said recoded IF signal.** (Emphasis added.)

None of the references, including those cited but not applied, taken alone or in combination, teaches, discloses or suggests the invention as presently claimed. That is, none of the references teaches, discloses or suggests a satellite digital audio radio multipoint distribution system having a terrestrial repeater adapted to receive and recode satellite signals into IF signals and a system for distributing the recoded IF signals.

In the above-identified Office Action, the Examiner cited Marko *et al.* and Nguyen *et al.* and suggested that the invention as claimed was unpatentable in view of the combination thereof.

Marko *et al.* discloses a method and apparatus for continuous cross-channel interleaving for use in a satellite digital audio radio system. The Examiner suggests that this reference shows a satellite digital audio radio multipoint distribution system such as that disclosed and claimed herein. However, this position is in error. That is, this reference clearly does not teach, disclose or suggest a distribution or rebroadcast of the terrestrial signal at an intermediate frequency as presently claimed. On the contrary, in accordance with the teachings of the reference, the terrestrial signal is upconverted and rebroadcast at a radio frequency (RF). (See col. 1, lines 54 - 57.)

This shortcoming is not overcome by the teaching of Nguyen. Nguyen was cited to show the provision of multiple output signals. However, inasmuch as Nguyen shows a demodulation of the IF signal to baseband by a demodulator 122 (Fig. 7), it is clear that this reference does not teach or suggest a distribution of an IF signal nor otherwise suggest a combination with Marko effective to render the invention as presently claimed obvious.

The remaining references have been considered. Clearly, none of the references, taken alone or in combination, teach, disclose or suggest the invention as presently claimed. Reconsideration, allowance and passage to issue are therefore respectfully requested.

Respectfully submitted,
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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

Paragraph beginning at line 15 of page 7 has been amended as follows:

Fig. 4 is a block diagram of an illustrative implementation of the multipoint SDARS receiver 20' constructed in accordance with the teachings of the present invention. With the exceptions of the modifications disclosed herein, in the preferred embodiment, the receiver 20' is an XM satellite receiver such as that disclosed and claimed in copending U.S. patent applications entitled LOW COST INTEROPERABLE SATELLITE DIGITAL AUDIO RADIO SERVICE (SDARS) RECEIVER ARCHITECTURE, filed May 25, 1999 by P. Marko et al., serial no. 09/318,296, (Atty. Docket No. XM 0006) and SATELLITE DIGITAL AUDIO RADIO SERVICE RECEIVER ARCHITECTURE FOR RECEPTION OF SATELLITE AND TERRESTRIAL SIGNALS, filed 11/04/1999 by P. Marko et al., serial no. 09/435,317, (Atty. Docket No. XM 0003) the teachings of both of which are hereby incorporated herein by reference.

Paragraph beginning at line 18 of page 8 has been amended as follows:

As shown in Fig. 5, the time-division demultiplexed signal is depunctured and applied to a forward error correcting circuit 310. As is well known in the art, depuncturing involves a selective removal of bits associated with a Viterbi encoded word. The output of the depuncturing circuit 309 is input to a Viterbi decoder 314 in the forward error correcting circuit 310. Thereafter, the received signal is Viterbi decoded, ~~the interleaved~~ deinterleaved (316), and Reed-Solomon decoded (318). Multi-carrier modulation, time-division demultiplexing, depuncturing, Viterbi decoding, de-interleaving and Reed-Solomon decoding are well known in the art.

Paragraph beginning at line 18 of page 9 has been amended as follows:

The source decoder 400 receives a BC (Broadcast Channel) bitstream and control signals from the channel decoder 300 and performs service layer decoding in an SL decoder 404 and decryption in a decrypting circuit 406 in the manner disclosed in the above-referenced patents filed by P. ~~Marco~~ Marko *et al.*, the teachings of which have been incorporated herein by reference. (As is known in the art, the 'Broadcast Channel' is a dedicated TDM stream consisting of a logical grouping of TDM multiplex prime rate channel packets. The Broadcast Channel carries all the information required to demultiplex the TDM stream.) Service layer decoding is facilitated through use of information carried in the Broadcast Information Channel by a control word is stored in a transport layer control register 408 by the system controller to determine which broadcast channels are demultiplexed. Decryption is facilitated by an encryption key provided by a broadcast authorization channel decoder 410. The decryption is required inasmuch as the satellite signals are transmitted in an encrypted form to limit authorized access.

Paragraph beginning at line 4 of page 10 has been amended as follows:

The decrypted signals are provided to an audio source decoder 420 and a data port 430. The audio source decoder 420 is configured to provide an analog or digital output signal depending upon the application as will be appreciated by ~~of~~ those of ordinary skill in the art. The data port 430 is configured to provide digital output data such as may be appropriate for a visual display or any external data device, e.g., laptop.

IN THE CLAIMS:

Claims 1 – 16 have been canceled.

Claims 17, 20, 22 and 28 have been amended as follows:

17. (Amended) A satellite digital audio radio multipoint distribution system comprising:

a satellite antenna for receiving a satellite digital audio radio signal;

a terrestrial repeater connected to ~~set~~ said antenna for decoding said satellite signal and recoding said signal into ~~a~~ an intermediate frequency (IF) satellite radio terrestrial broadcast format signal;

a system for distributing said recoded IF signal, and

plural satellite digital audio radio service receivers adapted to receive said recoded IF signals from said distributing system and provide an audio and/or visual output signals in response thereto.

20. (Amended) The invention of Claim 19 wherein said ~~converted~~ recoded signal is an XM radio terrestrial intermediate frequency multi-carrier modulated signal.

22. (Amended) The invention of Claim 17 wherein each of said plural receivers includes a channel decoder integrated circuit adapted to receive said ~~converted~~ recoded signal and provide a digital bitstream output in response thereto.

28. (Amended) A method for distributing a satellite digital audio radio signal to multiple receivers including the steps of:

receiving a satellite digital audio radio signal and distributing a ~~converted~~ recoded signal in response thereto and

receiving said distributed ~~downconverted~~ recoded signal via plural receivers and providing plural output signals in response thereto.

Claim 29 has been added.